STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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In the matter, on the Commission's own motion, to open a docket that will be used to collaboratively consider issues related to both the deployment of plug-in electric vehicle charging facilities and to examine issues germane to the use of compressed natural gas as a motor vehicle transportation fuel in Michigan.	)	Case No. U-18368

At the October 25, 2017 meeting of the Michigan Public Service Commission in Lansing, Michigan.

PRESENT: Hon. Sally A. Talberg, Chairman
Hon. Norman J. Saari, Commissioner
Hon. Rachael A. Eubanks, Commissioner

ORDER AND NOTICE OF OPPORTUNITY TO COMMENT

The purpose of this order is to seek additional input on topics related to the adoption of plug-in electric vehicles (PEVs) in Michigan and the deployment of associated infrastructure and technology, in an effort to define the regulatory role of the Commission in this area, and to provide guidance to regulated electric utilities and other interested persons.

Background

Beginning in 2010, the Commission initiated the Michigan Plug-in Electric Vehicle Preparedness Task Force (task force) to help facilitate and support the adoption of electric vehicles in Michigan. Participants included representatives from automobile manufacturers, electrical contractors, environmental advocates, electric utilities, and state government, among others. The

efforts of the task force at that time included working to update the Michigan Building Code regarding installation of electric vehicle charging stations, as well as analyzing the impact of electric vehicle adoption and usage on the electric grid. The Commission also approved initial electric vehicle tariffs for several regulated electric utilities, including DTE Electric Company's Experimental Electric Vehicle Tariff D1.9, Consumers Energy Company's (Consumers) Experimental Electric Vehicle Tariff D13.10, and Indiana Michigan Power Company's Experimental Revised Off-Peak Energy Storage/Plug-in Electric Vehicle Tariff. Ultimately, the task force's activities were turned over to "Plug-in Ready Michigan," an organization that sought to build on the initial activities of the Commission and its partners by creating an electric vehicle preparedness plan.

More recently, in Consumers' last electric rate case, Case No. U-17990, the utility proposed to include $10.625 million in its rate base to install 30 fast chargers and 750 charging stations. Additionally, the company proposed to offer a $1,000 incentive to its electric customers who purchase or lease a PEV and install an at-home charging station, capped at 2,500 rebates. Ultimately, Consumers withdrew its PEV proposal, but agreed that it would be willing to participate in a future collaborative on PEV-related issues in Michigan. Other parties to Case No. U-17990 supported a collaborative approach to the consideration of PEV-related issues. The Commission Staff (Staff) recommended to also include, through a collaborative workgroup, other utilities, third-party suppliers of charging equipment, automobile manufacturers, the Michigan Department of Transportation, and local government representatives.

In its February 28, 2017 order in Case No. U-17990 (February 28 order), the Commission noted its preference for the use of a technical conference, instead of the suggested collaborative workgroup, to engage stakeholders on this topic. The Commission stated:

> The Commission agrees that significant PEV charging issues were raised in this case and that emerging PEV charging technology will need further study and review to inform any future collaborative. Therefore, as an initial step, the Commission will host a technical conference inviting various stakeholders, including utilities, auto manufacturers, third-party suppliers of charging equipment, transportation planners and other parties that are not formal market participants, yet have significant expertise in PEV technology, to discuss issues associated with the deployment of PEV charging. The discussions will address both public charging stations and at-home and business deployment of PEV infrastructure. The Commission will address PEV issues on a statewide basis and not limit discussion to Consumers' service territory. Issues for discussion will include, but are not limited to, charger technology and deployment, electric rate structure for these devices, installing and maintaining charging systems, time of day usage, and electric load balancing concerning the impact of PEV charging on grid resources. Therefore, on its own motion, the Commission will issue an order in a separate docket for the purpose of initiating the PEV technical conference.

February 28 order, pp. 48-49.

Accordingly, the Commission opened this docket to announce the beginning of the effort to collaboratively address PEV issues through a technical conference as discussed in its February 28 order. In addition to addressing PEV issues, the conference examined compressed natural gas (CNG) and its use as a motor vehicle fuel. Other state agencies, including the Michigan Agency for Energy (MAE), the Michigan Economic Development Corporation (MEDC), the Michigan Department of Transportation **(**MDOT), Michigan Department of Technology, Management and Budget (DTMB), and the Michigan Department of Environmental Quality (MDEQ) participated given their interest in PEV and CNG programs.

On August 9, 2017, the Commission and MAE hosted the Michigan Technical Conference on Alternative Fuel Vehicles. The Commission was impressed by the depth and breadth of talent and expertise that convened to address regulatory and infrastructure issues as demand grows for alternative fuel vehicles. The collaborative effort included subject matter experts from the utilities, the auto industry, PEV charging equipment suppliers, environmental advocates, transportation planners, vendors, and other experts in the field. Ultimately, the technical

conference successfully engaged stakeholders in follow-up discussions addressing: (1) the state of PEV and natural gas vehicle technology and infrastructure; (2) opportunities for and barriers to PEVs in the marketplace; and (3) the role of regulation and government in creating effective public policy. Following the technical conference, the Staff continued to augment its understanding of PEV related issues by meeting individually with various stakeholders.

Summary of Technical Conference

The Conference's first panel focused on PEV technology and industry trends. Participants included the Center for Automotive Research, Ford Motor Company, General Motors, and the Society of Automotive Engineers. The automakers gave an overview of their PEV marketing and strategy, and posited that the PEV market will not escape "niche" status unless utilities and regulators become more involved. A need for increased education for the general public was discussed. Lastly, all parties expressed a need to work together to mitigate range anxiety by constructing additional charging stations and developing better battery technology. The automakers stressed that the lack of charging stations has been an impediment to increased PEV adoption, and urgently called for a solution. They provided a summary of their fundamental decision that charging infrastructure should not be borne in the cost of the vehicle, but needs to be funded and constructed by other entities. The theme of "who pays" was initiated in this first panel, and was carried throughout the remainder of the conference.

The next panel focused on PEV charging technology and the barriers facing PEV deployment. Panelists included Navigant Consulting, ChargePoint, Greenlots, Siemens, the Edison Electric Institute, and Michigan State University. This panel touched upon the various charging station business models and how to optimally locate infrastructure to mitigate range anxiety and reduce potential strain on the grid. The panel outlined factors to consider when making these decisions,

such as the need for electric utility load shifting or socially or environmentally optimized outcomes. Panelists agreed that there has been a lack of customer education regarding PEV charging generally, and encouraged a coordinated effort by the automakers, auto dealerships and utilities.

The Conference had a working lunch that had a robust conversation about natural gas vehicles. Panelists included the American Gas Association, Consumers Energy, DTE Gas Services and SEMCO Energy Gas Company. They discussed the natural gas vehicle landscape and its opportunities. Similar to PEVs, CNGs also face a lack of fueling infrastructure, which impedes the growth of this market. Currently, the CNG market is focused on commercial and mass transportation sectors and there has been little entry into the consumer market. This panel identified a number of benefits to CNG technology, including an opportunity to diversify transportation fuel sources beyond a single commodity and energy independence.

The final panel addressed the role of regulation and government in increasing the deployment of PEVs. Representatives from Consumers, DTE Energy, the Natural Resources Defense Council, and the Regulatory Assistance Project had a lively discussion. There are many issues that should be considered that go beyond encouraging PEV adoption: cost causation and who should pay for charging stations, time of use rates, the role of financial incentives, obsolescence concerns, sale-for-resale restrictions, public health, and the impact on electrical grid reliability, among others. Further complicating matters, PEV considerations involve multiple state agencies beyond the Commission. For example, the state's road funding is derived from a combination of gas tax revenues and general fund dollars. Accordingly, policies at the State level should consider these multi-disciplinary factors to ensure there are not unintended consequences.

Conference participants reflected on the past, present and future of PEV trends. When the first generation of PEVs was introduced to the market, it was at a time of high gasoline prices, which shifted customer behavior when factoring in the upfront and ongoing costs of owning a vehicle. The early adopters faced a limited charging station network, range anxiety and other challenges that caused the adoption to plateau, and this was exacerbated when gasoline prices declined from historic highs. Upon reflection, conference participants indicated this may have been the best outcome, as it allowed time to address these frustrations before mass adoption. Today, improved battery technology and steady ownership costs have served as a catalyst for regrowth of this market. Looking into the future, there was consensus that autonomous vehicles are going to enter the market in the next several years, and will rely on electrification. Further, many automakers have announced plans to discontinue or reduce manufacturing of traditional combustion engines in the medium to long term. Accordingly, customer behaviors will no longer be driven by economics of fuel sources alone, but new technology and vehicle availability.

The Commission is encouraged by the amount of consensus on issues related to alternative fuel vehicles, and appreciates the efforts of all involved to this point, including participants and attendees at the technical conference, as well as those who provided thoughtful comments in this docket. Although the technical conference addressed alternative fuel vehicles generally, for the purposes of this order, the Commission is focused on PEVs in particular.

Discussion

All the technical conference participants agreed that electric vehicles are already impacting the electric utility industry. Multiple commenters in the docket--ranging from Clean Fuels Michigan, Consumers, DTE Energy, GreenLots, and the Sierra Club --further reiterated that any increased PEV adoption will only present new economic, social, and political challenges and opportunities

for our society. Infrastructure to support vehicle charging at homes, workplaces, and other strategic locations across the state would facilitate this transition in the transportation and electric sectors with more widespread adoption of PEVs. At the technical conference, both Ford Motor Company and General Motors urged that, in their view, the primary barrier to the development of the PEV market is lack of charging infrastructure. Perhaps the biggest barrier relates to the "chicken and egg" nature of adoption of electric vehicles and deployment of charging infrastructure – if there are enough electric vehicles on the road, then charging infrastructure would be expected to follow, but drivers may not be willing to purchase an electric vehicle if they are not confident they will be able to easily refuel.

Given its role as a utility regulator, the Commission is not in a position to promote the adoption of PEVs. Notwithstanding, the Commission is committed to proactively identifying and addressing regulatory barriers within its authority related to charging infrastructure, and to providing guidance to utilities and other stakeholders to ensure that any utility programs and rates can provide a benefit for all customers through this transition.

The Commission has both near-term and long-term roles in addressing regulatory barriers and providing regulatory guidance. Near-term actions that can be taken include the following:

- Addressing sale for resale requirements: In Case No. U-17990, the Commission adopted the Staff's recommendation that the sale of electricity by electric vehicle charging station owners should not be treated as a resale of electricity under Consumers'tariff provision C4.4, dealing with resale of electricity, or as a sale by regulated utilities. To the extent that other regulated electric utilities have similar provisions in place, the Commission is open to addressing this issue in those tariffs as well.

- Providing useful information to customers: Buying or leasing a vehicle is typically a major financial decision for potential customers, and having an accurate understanding of both costs and benefits can aid in decision-making. Ensuring utilities are positioned to provide customers accurate and clear information and education on the cost of electricity and associated payback of a PEV under various electric rate options and to improve the overall customer experience, potentially in coordination with other partners such as automobile manufacturers and dealers and nonprofit organizations.
- Examining changes to existing PEV tariffs and potential new rate design options: In light of several years of data collection, advances in technology, and new assumptions about uptake, it likely makes sense to revisit existing electric utility PEV tariffs, as well as exploring potential new rate design options that could provide benefits to both electric vehicle drivers as well as all customers on the utility system.

Long-term actions are more complex but are important to evaluating the role of the Commission and regulated electric utilities related to PEVs. The priority topics for the Commission in this respect relate to: (1) rate design; (2) grid impact and PEV integration into electric infrastructure planning and investment; (3) customer education; and (4) expectation of the utilities related to PEV deployment and ownership of equipment. The Commission must gain additional information relative to these topics to form a more complete understanding of its regulatory role, and the role of the regulated utility, in these important areas.

Accordingly, the Commission seeks comments on whether utilities should initiate a series of targeted pilot programs designed to further explore issues related to the deployment of PEV charging stations and associated infrastructure. If targeted pilot programs are appropriate as a means to guide future Commission and utility decision making, the Commission also seeks input

on the focus of such pilots so that they could strategically identify and reduce barriers and inform future investment and regulatory strategies. For example:

Rate design:

The use of time-varying or dynamic rates for public charging infrastructure or other options to shift charging behavior;

Whether, given the deployment of advanced metering infrastructure and other technological improvements, it is necessary for a customer to need a second meter installed in order to be on a PEV rate;

The role of demand charges and the effect on PEV charging infrastructure investment and usage.

Grid impact:

The potential grid impact of deployment of charging infrastructure/PEV adoption at various distribution system locations.

Customer education:

How utility companies can help to provide information to customers on costs and benefits of electric vehicle ownership under different utility programs/tariffs;

How utility companies can work with third parties (auto dealers, charging infrastructure owners/operators, etc.) to provide information relative to the impact of electric vehicle ownership/usage, such as payback analysis, infrastructure installation costs, infrastructure availability, etc.

The role of the regulated utility in infrastructure deployment/cost recovery:

What is the outlook for the competitive market for charging infrastructure nationally and in Michigan;

Whether there are global or localized market failures or barriers where it makes sense for regulated utilities to deploy electric vehicle charging infrastructure;

Cost/benefit analyses relative to cost causation, customer benefits, and potential cost recovery from utility customers relative to deployment of PEV infrastructure;

> Are there avenues beyond traditional ratepayer funded infrastructure that the utility should be permitted to explore;
>
> What are the criteria the Commission should use to evaluate utility involvement, such as incentives or investments in charging infrastructure, to justify any upfront costs.

Any other issues that commenters would like to bring to the Commission's attention or suggest for inclusion in future pilot programs are also encouraged. The Commission believes that a thoughtfully designed, experimental approach to pilot projects will position utilities, stakeholders, and the Commission to make informed, data-driven decisions.

Any person may submit written or electronic comments regarding the targeted pilot programs and related PEV deployment issues. Such comments shall be filed with the Commission and must be received no later than 5:00 p.m. on November 17, 2017, to be timely. Written comments should be sent to: Executive Secretary, Michigan Public Service Commission, P.O. Box 30221, Lansing, MI 48909. Electronic comments or letters may be e-mailed to mpscedockets@michigan.gov. All comments should reference Case No. U-18368. All information submitted to the Commission in this matter will become public information available on the Commission's website and subject to disclosure.

THEREFORE IT IS ORDERED that:

A. The Commission's Executive Secretary shall electronically serve copies of this order on all electric and gas utilities regulated by the Commission, the parties in Case Nos. U-17990 and U-18014, the former Michigan Plug-in Electric Vehicle Preparedness Task Force stakeholders, representatives of the Michigan Agency for Energy, the National Governor's Association, the Michigan Economic Development Corporation, the Michigan Department of Transportation, the

Michigan Department of Technology, Management, and Budget, the Michigan Department of Environmental Quality, and on all subscribers to Commission's own motion dockets.

B. Any person may submit comments regarding the targeted pilot programs and related plug-in electric vehicle deployment issues by 5:00 p.m. on November 17, 2017, in accordance with the instructions set forth in the body of this order.

The Commission reserves jurisdiction and may issue further orders as necessary.

MICHIGAN PUBLIC SERVICE COMMISSION

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Sally A. Talberg, Chairman

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Norman J. Saari, Commissioner

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Rachael A. Eubanks, Commissioner

By its action of October 25, 2017.

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Kavita Kale, Executive Secretary